

BATTERY POWER



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As Lithium-Ion Batteries Develop



In the world of batteries there are constant additions to the types offered on the market as well as improvements in the extant models. One of the more impressive types of battery is the lithium ion battery, the parameters, including pros and cons, of which will be discussed in this article.

Lithium is the lightest of all metals and for this reason batteries of lithium ion are extremely light.

They can be small yet efficient with the efficiency heightened by a high charge density. Unfortunately, lithium ion batteries are much more sensitive to jostling and so must be treated better than other such batteries. The good news is that they are much safer than when they were first developed. There was a time spanning nearly twenty years in which the initial lithium ion batteries were quite volatile and downright dangerous (and therefore almost exclusively confined to the laboratory). Even today, these batteries must be treated with respect.

Another advantage to lithium ion over other batteries is that they don't exhibit the memory effect (also known as the lazy battery effect). This means that, for rechargeable batteries, there is not a loss of energy storage over a period of time.

There is, however a storage loss of 1/5 capacity per annum if the battery is stored at 25 degrees celsius or more. Even when stored at cooler levels, the loss can be around 5%, comared to a 1 or 2% loss of conventional batteries. The good aspect is that this is a markedly smaller loss than many other upper-end batteries.

With regard to the specifications, lithium ion usually is used in rechargeable applications and when this is done, there is current limiting at a constant voltage. Once 4.2 volts is reached (the normal average voltage level being 3.6), the system stops feeding energy, and begins again when the current dips near to zero. This type of battery cannot be fast charged, typically requiring four to six hours to completely charge. That charge is usually within 7% of the first current's rate.